

CLAIMS

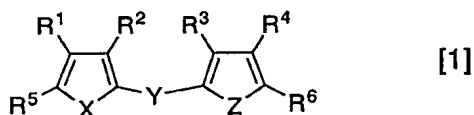
1. A light emitting element comprising:

a pair of electrodes including a first electrode and a second electrode;

5 a light emitting layer between the pair of electrodes; and

a layer between the light emitting layer and at least one of the pair of electrodes,

wherein the layer contains a composite of a conjugated molecule represented by a following general formula [1] and a substance having an electron-accepting property to the conjugated molecule,



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wherein the X is the same as or different from the Z,

wherein the X and the Z each represent a sulfur atom, an oxygen atom, a nitrogen atom to which hydrogen, an alkyl group, or aryl group is bonded, or a silicon atom to which hydrogen, alkyl group, or aryl group is bonded,

15 wherein the Y represents an arylene group, and

wherein the R¹ to R⁶ each represent any of a hydrogen atom, an aryl group, an alkyl group, a cyano group, a dialkylamino group, a thioalkoxy group, and an alkoxy group.

20 2. A light emitting element comprising:

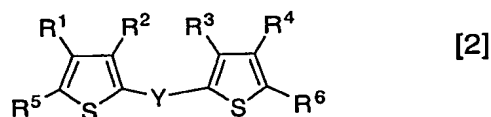
a pair of electrodes including a first electrode and a second electrode;

a light emitting layer between the pair of electrodes; and

a layer between the light emitting layer and at least one of the pair of electrodes,

25 wherein the layer contains a composite of a conjugated molecule represented by a following general formula [2] and a substance having an electron-accepting property to the conjugated molecule,

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wherein the Y represents an arylene group, and

wherein the R¹ to R⁶ each represent any of a hydrogen atom, an aryl group, an alkyl group, a cyano group, a dialkylamino group, a thioalkoxy group, and an alkoxy group.

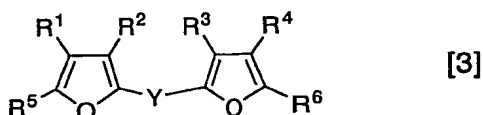
3. A light emitting element comprising:

a pair of electrodes including a first electrode and a second electrode;

a light emitting layer between the pair of electrodes; and

10 a layer between the light emitting layer and at least one of the pair of electrodes,

wherein the layer contains a composite of a conjugated molecule represented by a following general formula [3] and a substance having an electron-accepting property to the conjugated molecule,



15 wherein the Y represents an arylene group, and

wherein the R¹ to R⁶ each represent any of a hydrogen atom, an aryl group, an alkyl group, a cyano group, a dialkylamino group, a thioalkoxy group, and an alkoxy group.

20 4. A light emitting element comprising:

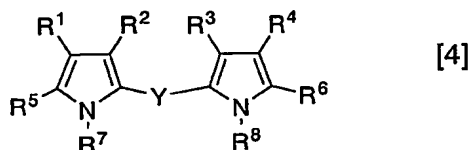
a pair of electrodes including a first electrode and a second electrode;

a light emitting layer between the pair of electrodes; and

a layer between the light emitting layer and at least one of the pair of electrodes,

wherein the layer contains a composite of a conjugated molecule represented by

a following general formula [4] and a substance having an electron-accepting property to the conjugated molecule,



wherein the Y represents an arylene group,

5 wherein the R¹ to R⁶ each represent any of hydrogen, an aryl group, an alkyl group, a cyano group, a dialkylamino group, a thioalkoxy group, and an alkoxy group, and

wherein the R⁷ and the R⁸ each represent any of hydrogen, an alkyl group, and an aryl group.

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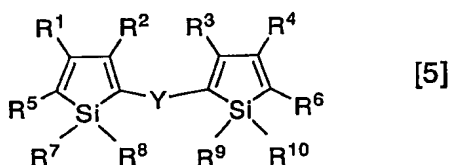
5. A light emitting element comprising:

a pair of electrodes including a first electrode and a second electrode;

a light emitting layer between the pair of electrodes; and

a layer between the light emitting layer and at least one of the pair of electrodes,

15 wherein the layer contains a composite of a conjugated molecule represented by a following general formula [5] and a substance having an electron-accepting property to the conjugated molecule,



wherein the Y represents an arylene group,

20 wherein the R¹ to R⁶ each represent any of hydrogen, an aryl group, an alkyl group, a cyano group, a dialkylamino group, a thioalkoxy group, and an alkoxy group, and

wherein the R⁷ to R¹⁰ each represent any of hydrogen, an alkyl group, and an aryl group.

6. A light emitting element according to any one of claims 1 to 5, wherein the light emitting element emits light from the light emitting layer when a voltage is applied so that an electric potential of the first electrode is higher than that of the second
5 electrode, and wherein the layer is between the first electrode and the light emitting layer.

7. A light emitting element according to any one of claims 1 to 5, wherein the light emitting element emits light from the light emitting layer when a voltage is applied
10 so that an electric potential of the first electrode is higher than that of the second electrode, wherein the layer is between the second electrode and the light emitting layer, and wherein the light emitting element has an electron generation layer which is in contact with the layer at a light emitting layer side.

15 8. A light emitting element according to any one of claims 1 to 5, wherein the light emitting element emits light from the light emitting layer when a voltage is applied so that an electric potential of the first electrode is higher than that of the second electrode, wherein the layer is between the first electrode and the light emitting layer, and between the second electrode and the light emitting layer, and wherein the light
20 emitting element has an electron generation layer which is in contact with the layer between the second electrode and the light emitting layer at a light emitting layer side.

9. A light emitting element according to any one of claims 1 to 5, wherein the substance having the electron-accepting property to the conjugated molecule contains a
25 metal oxide, a metal nitride, an organic compound, or Lewis acid.

10. A light emitting element according to any one of claims 1 to 5, wherein the Y in the formula of the conjugated molecule contains a bivalent aromatic hydrocarbon

radical having a carbon number of 6 to 20, or a bivalent heteroaromatic ring radical having a carbon number of 4 to 30 including oxygen, nitrogen, sulfur or silicon.

11. A light emitting element according to any one of claims 1 to 5, wherein a
5 cyclic structure is formed by the R^1 and the R^2 of the conjugated molecule, and a cyclic structure is formed by the R^3 and the R^4 .

12. A light emitting element according to any one of claims 1 to 5, wherein the
light emitting element is used as a pixel of an electronic apparatus.

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13. A light emitting element according to claim 12, wherein the electronic
apparatus is at least one selected from the group consisting of a personal computer, a
telephone, and a television.

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14. A light emitting element according to any one of claims 1 to 5, wherein the
light emitting element is used as a light source.

[EXPLANATION OF REFERENCES]

101: first electrode, 102: second electrode, 111: first layer, 112: second layer, 113: third layer, 114: composite layer, 115: hole transport layer, 116: composite layer, 117: hole injecting layer, 118: composite layer, 201: first electrode, 202: second electrode, 211: first layer, 212: second layer, 213: third layer, 214: composite layer, 215: electron generation layer, 301: first electrode, 302: second electrode, 311: first layer, 312: second layer, 313: third layer, 324: first composite layer, 325: electron generation layer, 326: hole transport layer, 327: second composite layer, 328: second composite layer, 329: hole injecting layer, 330: second composite layer, 6500: substrate, 6503: FPC, 6504: printed wiring board (PWB), 6511: pixel portion, 6512: source signal line driver circuit, 6513: writing gate signal line driver circuit, 6514: erasing gate signal line driver circuit, 901: first transistor, 902: second transistor, 903: light emitting element, 911: gate signal line, 912: source signal line, 913: writing gate signal line driver circuit, 914: erasing gate signal line driver circuit, 915: source signal line driver circuit, 916: power supply, 917: current supply line, 918: switch, 919: switch, 920: switch, 1001: first transistor, 1002: second transistor, 1003: gate signal line, 1004: source signal line, 1005: current supply line, 1006: electrode, 10: substrate, 11: transistor, 12: light emitting element, 13: first electrode, 14: second electrode, 15: layer, 16a: first interlayer insulating film, 16b: first interlayer insulating film, 16c: first interlayer insulating film, 17: wiring, 18: partition layer, 19a: second interlayer insulating film, 19b: second interlayer insulating film, 21: gate electrode, 22: gate insulating film, 23: semiconductor layer, 951: substrate, 952: electrode, 953: insulating layer, 954: partition layer, 955: layer, 956: electrode, 5521: main body, 5522: chassis, 5523: display portion, 5524: keyboard, 5551: display portion, 5552: main body, 5553: antenna, 5554: audio output portion, 5555: audio input portion, 5556: operation switch, 5557: operation switch, 5531: display portion, 5532: chassis, 5533: speaker, 5511: chassis, 5512: liquid crystal device, 5513: light emitting device, 5514: chassis, 5515: external input terminal, 5516: external input terminal, 5517: light conducting plate, 5518: array, 1501: first electrode, 1502: second electrode, 1503: layer, 1511: hole transport layer, 1512: light emitting layer, 1513: electron transport layer